

WHAT IS CLAIMED IS:

1. A composite sheet comprising an elastically stretchable layer having upper and lower surfaces and an inelastically stretchable fibrous layer formed with stically stretchable continuous fibers, these two layers being bonded together intermittently in first and second directions orthogonal to each other, at least, in said first direction, said composite sheet being characterized by that:

said continuous fibers are oriented substantially in said one direction so that a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction may define a ratio S_1/S_2 of 3.0 or higher.

2. The composite sheet according to Claim 1, wherein a stretch efficiency in said first direction is in a range of 60 ~ 90 %.

3. A process for making said composite sheet by bonding an elastically stretchable layer having upper and lower surfaces and an inelastically stretchable fibrous layer

formed by inelastically stretchable continuous fibers put on at least one of the upper and lower surfaces to each other intermittently in first and second directions orthogonal to each other, at least, in said first direction, said process being characterized by that:

said continuous fibers lie one upon another substantially without being bonded together to form said inelastically stretchable web and that the web is, in turn, bonded to said elastically stretchable web after said continuous fibers have been oriented substantially in said one direction.

4. The process according to Claim 3, said process comprising steps of extruding said continuous fibers from a melt extruder, collecting said continuous fibers on a conveyor running in one direction to form said inelastically stretchable web, orienting said continuous fibers substantially in said one direction and at the same time placing said continuous fibers upon said elastically stretchable web and finally bonding these two webs together intermittently in said one direction to obtain said composite sheet.

5. The process according to Claim 3, said step of orienting said continuous fibers substantially in said one direction including said conveyor running at a velocity V_1 and a second conveyor provided at downstream of said first conveyor and running at a velocity V_2 so that a ratio V_2/V_1 may lie in a range of 1.05 - 10.

6. The process according to Claim 3, wherein said continuous fibers are oriented in said one direction so that a tensile strength S_1 of said composite sheet in said one direction and a tensile strength S_2 of said composite sheet in the direction orthogonal to said one direction may establish a ratio S_1/S_2 of 3.0 or higher.